

What is claimed is:

1. A magnetically damped inclinometer for determining the sway of an object in relation to a support surface, the inclinometer comprising:

a housing fixed to the object,
a rotatable shaft extending from said housing,
a pendulum fixedly mounted to said shaft,
an index member formed of a ferromagnetic material and attached to said shaft,
and a magnet attached to the object.

2. The damped inclinometer of claim 1, wherein said magnet is an electromagnet.

3. The damped inclinometer of claim 1, wherein said magnet is a permanent magnet.

4. The damped inclinometer of claim 1, wherein said index member is formed of a ferrous material.

5. The damped inclinometer of claim 1, wherein said index member is formed of a plurality of members located around a perimeter of said shaft.

6. The damped inclinometer of claim 5, wherein said index members are permanent magnets.

7. The damped inclinometer of claim 1, wherein said magnet is a plurality of permanent magnets mounted on a ring attached to the object and located around said index member.

8. The damped inclinometer of claim 7, wherein said ring is not concentric with said shaft, thereby creating a increasing air gap between said ring and said index member as said pendulum rotates said shaft away from an initial position.

9. The damped inclinometer of claim 1, further comprising:

a proximity void located in said shaft,

and a proximity sensor attached to the object and located proximate said proximity void.

10. The damped inclinometer of claim 1, wherein the object is a spreader bar supporting a container load and the support surface is a carriage of a crane.

11. The damped inclinometer of claim 1, wherein said pendulum is rigid.

12. The damped inclinometer of claim 1, further comprising an actuator configured to move one of said index member and said magnet from a first position to a second position, thereby increasing a gap between said index member and said magnet.

13. A magnetically damped inclinometer for determining the sway of an object in relation to a support surface, the inclinometer comprising:

a housing fixed to the object,

a rotatable shaft extending from said housing,

a pendulum fixedly mounted to said shaft,

a first magnet fixedly attached to said shaft,

a second magnet slidably attached to the shaft,

a spring located between said first and second magnets,

a cam extending from said second magnet

and a cam roller attached to the object,

wherein said pendulum has an initial position in which said cam roller engages a high point on said cam,

and wherein when said pendulum rotates from said initial position, said cam is rotated such that said roller engages a lower point on said cam thereby allowing said spring to push said second magnet away from said first magnet.

14. The magnetically damped inclinometer of claim 13, wherein said spring is a coil spring located around said shaft.

15. The magnetically damped inclinometer of claim 13, wherein, in said initial position said first magnet and said second magnet are rotationally aligned.

16. The magnetically damped inclinometer of claim 13, wherein at least one of said first magnet and said second magnet is an electromagnet.

17. The damped inclinometer of claim 13, wherein said pendulum is rigid.

18. The damped inclinometer of claim 13, further comprising an actuator configured to move one of said first and second magnets from a first position to a second position, thereby increasing a gap between said first and second magnets.